

REMARKS

Claims 1-17 and 25-34 are pending in the present application. Claims 25-34 stand allowed. Claims 3-5, 13 and 14 were indicated to contain allowable subject matter. Reconsideration of the present application is respectfully requested in view of the arguments set forth herein.

In the Office Action, claims 1 and 6-10 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Tang (U.S. Patent No. 6,479,377). Claims 2 and 15 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Tang in view of Choi (U.S. Patent No. 5,629,258). Claims 11-12 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Tang in view of Lou (U.S. Patent No. 5,872,045). Claims 16-17 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Tang in view of Choi and further in view of Brown (U.S. Patent No. 6,498,372). Applicants respectfully traverse the Examiner's rejections.

As the Examiner well knows, an anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). To the extent the Examiner relies on principles of inherency in making the anticipation rejections in the Office Action, inherency requires that the asserted proposition necessarily flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981); *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990); *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Int. 1987); *In re King*, 231 U.S.P.Q. 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Oelrich*, at 326, quoting *Hansgirg v.*

Kemmer, 40 U.S.P.Q. 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; see also *Skinner*, at 1789. “Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Skinner*, at 1789, citing *Oelrich*. Where anticipation is found through inherency, the Office’s burden of establishing *prima facie* anticipation includes the burden of providing “...some evidence or scientific reasoning to establish the reasonableness of the examiner’s belief that the functional limitation is an inherent characteristic of the prior art.” *Skinner* at 1789.

Moreover, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp.*

v. *Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Applicants respectfully submit that Tang, the Examiner's primary reference, is far afield from the invention set forth in independent claim 1. Among other things, independent claim 1 recites the steps of forming an isolation trench and a contact trench in a substrate, wherein a width of the isolation trench is less than a width of the contact trench, and depositing an insulating material over the isolation trench and the contact trench to substantially fill the isolation trench and reduce an effective width of the contact trench. At no point does Tang disclose or even suggest a methodology that includes at least these limitations.

The Examiner, citing Figure 7A, identified the trench 32 in Tang as an isolation structure and the item 36 as a wide contact trench. First, it should be noted that neither the trench 32 nor the trench 36 are formed in the substrate 12. They are formed above the substrate. Claim 1

specifically requires that both the isolation trench and the contact trench be formed in the substrate. Thus, Tang is deficient in at least this respect.

Second, it is believed that the Examiner's reference to the trench 32 as an isolation trench is based upon a misreading of Tang. Tang specifically refers to this structure as a "local interconnect trench 32." Col. 5, l. 33. The trench 32 is temporarily filled with a dielectric layer 40 as part of the processing therein. Col. 5, ll. 45-47; Col. 6, ll. 19-21; Figure 8. An etching process is then performed to clear substantially all of the dielectric material from the trench 32. Col. 6, ll. 42-45. Then, the trench 32 is filled with any suitable interconnect material to form the local interconnect 60. Col. 7, ll. 4-7. In view of the foregoing, it is clear that, contrary to the Examiner's position, the structure 32 is not an isolation trench as that term is used in the specification and claims.

In view of the foregoing, it is respectfully submitted that Tang does not disclose many aspects of the claimed invention set forth in claim 1. Accordingly, the Examiner's anticipation rejections should be withdrawn.

The Examiner's obviousness rejections are likewise respectfully traversed. The Examiner's citations to Choi and Lou cannot cure the fundamental deficiencies in Tang, the Examiner's primary reference. Thus, even if these references were combined in the manner suggested by the Examiner, that combination of prior art would still not disclose each and every limitation of the pending claims. Accordingly, such an obviousness rejection would be legally improper.

As noted in the previous amendment filed in this case, Choi lacks many fundamental aspects of the present invention as well. More specifically, Choi is directed to a specific method

of forming a conductive line that uses a fluorine doped oxide layer as an insulating layer between conductive lines. Abstract. Figure 7D of Choi discloses a plurality of conductive lines 20 positioned above a first insulating layer 12. One of the conductive lines 20 is coupled to a conductive material 26. Col. 5, ll. 25-50. In Choi, the substrate is identified by the reference numeral 10. See, e.g., Col. 5, l. 32. Thus, Choi does not disclose forming any trenches in the substrate 10, much less an isolation trench and a contact trench wherein the width of the isolation trench is less than the width of the contact trench, as recited in claim 1. Choi only discloses forming trenches for conductive lines that are formed above the insulating layer 12. Nor does Choi disclose the formation of a buried conductive region. The structure 26 is understood to be a conductive liner. Col. 5, ll. 41-51. The region 26 identified by the Examiner is also not formed in the substrate as required by claim 2.

Additionally, Choi does not disclose or suggest depositing an insulating layer to substantially fill the isolation trench and to reduce an effective width of the contact trench, as recited in claim 1. The undersigned can find no suggestion in Choi to use a deposition process to substantially fill one trench while using the deposited layer to reduce the effective width of a larger trench. There is certainly no suggestion to adopt such a methodology with respect to the formation of an isolation trench and a contact trench formed in a substrate. For at least these reasons, it is respectfully submitted that Choi does not anticipate claims 1-17.

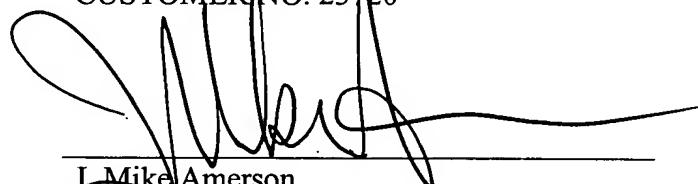
A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and

common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. It is respectfully submitted that any attempt to assert that the invention defined by independent claim 1 is obvious in view of the prior art of record constitutes an impermissible use of hindsight using Applicants' disclosure as a roadmap.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

WILLIAMS, MORGAN & AMERSON
CUSTOMER NO. 23720

A handwritten signature in black ink, appearing to read "Mike Amerson", is written over a horizontal line. The signature is fluid and cursive, with a large loop on the left and smaller loops and strokes extending to the right.

L. Mike Amerson
Reg. No. 35,426
10333 Richmond, Suite 1100
Houston, Texas 77042
(713) 934-4056
(713) 934-7011 (facsimile)

Date: October 24, 2005

ATTORNEY FOR APPLICANTS